

CLAIMS:

1. A greenhouse comprising:

an exterior wall structure which includes primarily transparent panels allowing entry to an interior of natural light;

5 a plurality of elongate benches located within the interior and arranged to provide support surfaces for supporting crop materials thereon for receiving the natural light and growing within the interior;

an air handling system for conditioning the air within the interior including at least one air moving fan, at least one interior air intake, at least one interior air outlet, at least one exterior vent and at least one component for changing
10 air temperature;

the exterior wall structure including side walls each defined by a plurality of vertical posts at spaced positions along the length of the side wall with transparent panels arranged to substantially fill the span between the posts;

15 the benches being arranged at spaced positions along one side wall such that each bench has one end adjacent said one side wall and extends therefrom at right angles thereto toward the opposite side wall;

each bench being associated with a respective one of the spans between the posts of said one side wall and arranged such that the number of spans
20 is equal to the number of benches.

2. The greenhouse according to Claim 1 wherein the width of each bench is substantially equal to the width of the span.

3. The greenhouse according to Claim 2 wherein at least some of the benches are mounted for side to side sliding movement and at least one of the benches has a width which is narrower than that of the span so as to allow a space between the benches for user access.

5 4. The greenhouse according to Claim 1 wherein the side walls at right angles to said one side wall each have the same spans between the posts thereof and the length of each bench from said one side wall is equal to a multiple of the spans.

5. The greenhouse according to Claim 1 wherein each of the
10 benches is located such that it has one end at said one side wall and has an opposed end spaced from said opposite wall.

6. The greenhouse according to Claim 1 wherein the span equals six feet.

7. The greenhouse according to Claim 1 wherein the posts and
15 panels form a curtain wall construction in which the panels are attached at their edges to the posts and fully extend across the span therebetween without intermediate support elements.

8. The greenhouse according to Claim 1 wherein each bench has associated therewith a respective one of a plurality of air handling systems each
20 including a fan, at least one air intake below the bench and at least one air outlet above the bench.

9. The greenhouse according to Claim 1 wherein the air handling system consists of a plurality of separate air handling systems each associated with a respective one of the benches and each including a fan, at least one air intake below the bench and at least one air outlet above the bench.

5 10. The greenhouse according to Claim 1 wherein there is provided an alley way formed outside the opposite wall by an alley wall parallel to the opposite wall, the alley way having a width equal to one span.

11. The greenhouse according to Claim 1 wherein there is provided a doorway into the interior, the doorway being formed in a door panel having a width
10 equal to one span and arranged to be mounted between two of the posts.

12. A greenhouse comprising:

an exterior wall structure which includes primarily transparent panels allowing entry to an interior of natural light;

a plurality of elongate benches located within the interior and arranged
15 to provide support surfaces for supporting crop materials thereon for receiving the natural light and growing within the interior;

an air handling system for conditioning the air within the interior including at least one air moving fan, at least one interior air intake, at least one interior air outlet, at least one exterior vent and at least one component for changing
20 air temperature;

the exterior wall structure including side walls each defined by a plurality of vertical posts at spaced positions along the length of the side wall with transparent panels arranged to substantially fill the span between the posts;

an electrical system for controlling the air handling system including at least one electrical cabinet containing electrical components;

the at least one electrical cabinet being formed as at least part of an integral panel having a width equal to one span and arranged for location between two of the posts.

13. The greenhouse according to Claim 12 wherein there are provided a plurality of electrical cabinets each formed as at least part of an integral panel having a width equal to one span and arranged for location between two of the posts.

14. The greenhouse according to Claim 12 wherein there is provided an alley way formed outside one wall by an alley wall parallel to the wall, the alley way having a width equal to one span and wherein the integral panel forms one panel spanning two posts of the wall of alley

15. The greenhouse according to Claim 12 wherein the integral panel is defined by the cabinet and wall panel portions along at least one side of the cabinet.

16. The greenhouse according to Claim 12 wherein the integral panel is fastened to the two posts.

17. The greenhouse according to Claim 12 wherein there is provided a doorway into the interior, the doorway being formed in a door panel having a width equal to one span and arranged to be mounted between two of the posts.

5 18. A greenhouse comprising:

an exterior wall structure which includes primarily transparent panels allowing entry to an interior of natural light;

a plurality of elongate benches located within the interior and arranged to provide support surfaces for supporting crop materials thereon for receiving the
10 natural light and growing within the interior;

an air handling system for conditioning the air within the interior including at least one air moving fan, at least one interior air intake, at least one interior air outlet, at least one exterior vent and at least one component for changing air temperature;

15 the exterior wall structure including side walls and a roof each defined by a plurality of structural members at spaced positions along the length of the side wall and roof with transparent panels arranged between the structural members;

the transparent panels having side edges thereof connected to the structural members and arranged to extend therebetween so that each panel
20 extends across the span therebetween;

each of the posts and the truss members being formed from an extruded tubular material;

each of the structural members being connected to one or more next adjacent structural members by an interior reinforcing member having ends extending into respective ends of the structural members.

19. A greenhouse comprising:

5 an exterior wall structure which includes primarily transparent panels allowing entry to an interior of natural light;

 a plurality of elongate benches located within the interior and arranged to provide support surfaces for supporting crop materials thereon for receiving the natural light and growing within the interior;

10 the exterior wall structure including side walls each defined by a plurality of vertical posts at spaced positions along the length of the side wall with transparent panels arranged to substantially fill the span between the posts;

 an air handling system for conditioning the air within the interior including a plurality of air moving fans each mounted in a fan housing having at least
15 one interior air intake and at least one interior air outlet;

 the fan housings being arranged in a row along one side wall of the exterior wall structure;

 the number of fan housings being equal to the number of spans between the posts along said one side wall;

20 each fan housing being mounted in the span between a respective pair of the posts.

20. The greenhouse according to Claim 19 wherein each fan housing projects between the posts such each side thereof lies inside a side surface of the respective post.

21. The greenhouse according to Claim 19 wherein said one side wall is formed by a plurality of non-transparent wall panels arranged in the span between each pair of posts, each non-transparent wall panel having a height substantially equal to the top of the fan housing.

22. The greenhouse according to Claim 21 wherein each non-transparent wall panel is located at a position spaced outwardly of the outside surfaces of the posts to define a channel inside the panels and outside the posts and wherein there is provided a sill covering the space and located at a bottom of the transparent panels.

23. The greenhouse according to Claim 19 wherein there is provided an air outlet through wall at the fan housing connected to the fan housing on a pressure side thereof.

24. The greenhouse according to Claim 19 wherein there is provided an air inlet through wall at the fan housing connected to the fan housing on a suction side thereof.

25. A greenhouse comprising:
an exterior wall structure which includes primarily transparent panels allowing entry to an interior of natural light;

a plurality of elongate benches located within the interior and arranged to provide support surfaces for supporting crop materials thereon for receiving the natural light and growing within the interior;

an air handling system for conditioning the air within the interior
 5 including wiring and piping for supplying electrical power and air conditioning fluid for changing the air temperature;

the exterior wall structure including side walls each side wall being formed by:

a plurality of vertical posts at spaced positions along the length
 10 of the side wall;

a plurality of upper transparent panels arranged in the span between each pair of the posts;

a plurality of bottom non-transparent wall panels arranged in the span between each pair of posts, each non-transparent wall panel extending to the
 15 bottom of the upper transparent panels;

a sill at the bottom of the transparent panels extending outwardly of the posts;

wherein each non-transparent wall panel is located at a position spaced outwardly of outside surfaces of the posts to define a channel inside the
 20 panels and outside the posts and below the sill for receiving said wiring and piping.

26. The greenhouse according to Claim 25 wherein the transparent panels are connected to the outside surfaces of the posts.